

CAAP Quarterly Report

Date of Report: June 30, 2015

Contract Number: DTPH5614-H-CAP06

Prepared for: Department of Transportation

Project Title: Robust Anomaly Matching for ICIPs: Reducing Pipeline Assessment Uncertainty Through 4-Dimensional Anomaly Detection and Characterization

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For quarterly period ending: June 30, 2015

Business and Activity Section

(a) Generated Commitments –

- Agreement Change Request:
 - We would like to request that the completion date for the project be extended to August 31, 2016. This is to accommodate the the fact that the graduate student, Craig Champlin, has been awarded an Internship with Chevron Energy Technology Corporation in Houston, Texas, and is spending the summer in Houston. No other change in the terms is requested.
- Purchases: none

(b) Status Update of Past Quarter Activities –

- Quarter 3 Task – Develop FAB-Map
 - FABMap (Fast Appearance Based Mapping) is an algorithm developed to allow a robot to identify locations that it has previously visited by using camera images and a probabilistic framework by learning an approximation to the joint distribution over visual elements contained in the images.
 - This approach does not rely on metric (measured) data, rather it relies on feature matching. The features are derived from the sensors used.
 - It remains to be seen if the sensors used in ICIP will produce sufficiently distinctive features.
 - Tests will have to wait until we have real data.
- We made contact with Pipeline Integrity engineer at CH2M and discussed issues of how our work would be influenced by the demands of real ILI and ICP pig runs, and extend to which pipelines are not piggable.
- Had a conversation with researcher at NIST as to distinctiveness of corrosion and implications of anomalies on pipeline strength.
- Planned activities from Q2 (1-4) where largely left undone.
- Craig left for Chevron in Houston on May 9.

(c) Description of any Problems/Challenges –

- With Craig leaving for Chevron at the end of the semester, work on the project has gone into hibernation. We are in communication, however, he focusing on tasks for Chevron. This is good in that he is learning a great deal about their operation and their perspective on pipeline integrity, but clearly the PHMSA project is not moving forward.

(d) Planned Activities for the Next Quarter –

- The graduate student, Craig Champlin, will return from his Internship on August 24.
- Assuming we have been successful at obtaining ILI data, we will begin to test our algorithm on that data.
- We will be meeting with ILI contractor to discuss data opportunities in mid August.